

REMARKS

Claims 1-34 are pending in the above-identified application and have been rejected in the most recent Office Action. Claims 1 and 11 have been amended herein and new claims 35 and 36 have been added. The drawings have been amended to address and correct various respective informalities and the specification has been amended accordingly to accommodate the addition of the required new drawing. Applicants respectfully traverse each ground of rejection and request reconsideration and further examination of the application under 37 CFR § 1.111. Applicants respond to each ground of rejection and objection as follows.

A. The drawings were objected to under 37 CFR 1.83(a).

The drawings were objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims, specifically the acoustic horn assemblies of claims 30-34. New drawing FIG. 9 was prepared to illustrate the acoustic horn assemblies as claimed in claims 30-34 and is submitted herewith. The specification has been amended to refer to new drawing FIG. 9 in the Brief Description of Drawings section and elsewhere. It is believed that new FIG. 9 overcomes the foregoing objections and that no new matter has been added. Thus, it is respectfully submitted that the drawings are no longer objectionable.

B. Claims 1-34 were rejected under 35 U.S.C § 103(a) as being unpatentable over Kasajima et al. (U.S. Patent No. 5,432,860).

Kasajima et al is directed at the reduction of resonance effects arising from the ports in a speaker enclosure, and discloses an acoustic horn disposed in a sound cabinet and composed of a porous sound-absorbing material to suppress frequency peak and dip effects for the purpose of eliminating resonance (see Abstract and col. 5, lines 29-57.) Kasajima et al. further discloses the use of sound absorbing members 40 as coverings for reflected-sound apertures 36 positioned away from the acoustic horn. (See col. 3, lines 42-48.) Applicant's independent claims 1 and 11, as amended, both relate to sound absorbing material operationally connected to the acoustic horn, wherein the sound absorbing material assists the horn in placing optimal sound pressure levels at desired locations to provide an improved sound coverage field.

Kasajima et al. does not teach or suggest the connection or positioning of volumes of sound absorbing material to selected portions of the horn exterior as a means or reducing port resonance. Instead, Kasajima et al. teaches a first embodiment involving the use of sound absorbing material 40 as coverings for reflected sound apertures 36, and teaches that the apertures 36, and thus the sound absorbing materials 40, "be disposed far from the speaker unit 34 as possible so as to prevent the sound 106 from reaching the interior of the cabinet through apertures 36C, 36D as possible." (See col. 4, lines 19-24.) Kasijima et al teaches another embodiment wherein the horn 60 itself is comprised of a porous sound absorbing material. (See col. 5, line 17 through col. 6, line 50.) In this embodiment Kasajima et al. again addresses the resonance problem by this time

suppressing the frequency peak and dip with the sound absorbing horn 60 materials themselves. Kasajima et al. is silent regarding the use of additional sound absorbing material for any other reason beyond resonance damping, including assisting the horn in placing optimal sound pressure levels at desired locations to provide an improved sound coverage field.

To establish a prima facie case of obviousness, three criteria must be met. First, there must be some suggestion or motivation to modify the reference or combine the reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art references must teach or suggest all of the claim limitations. MPEP § 706.02(j). There is nothing in the Kasijima et al. reference that would suggest its utility in addressing the problem of generating a sound wedge from a horn without sacrificing the horn's directivity gain, since the Kasijima et al reference is directed towards the elimination of resonance effects from a speaker enclosure and not the optimization of sound distribution in a theatre or stadium environment. In other words, while the Kasijima et al. reference is concerned with the elimination of unwanted resonance effects from an enclosure, it does not address how to preserve the directivity gain of a horn while shaping the horn's output as a sound wedge. Thus, the first and second criteria are not met by the Kasijima et al reference.

Assuming *arguendo* that the Kasijima reference satisfies the first and second criteria, the Kasijima et al. reference still does not teach or suggest positioning sound absorbing material in close proximity to an acoustic horn. Kasijima et al. either teaches a horn *made* of sound absorbing material or the placement of sound absorbing material on

enclosure port surfaces wherein the horn is positioned *as far as possible from* said surfaces. In fact, the Kasijima et al. reference teaches away from the positioning of sound absorbing material adjacent a horn in the only passage dealing with the placement of extraneous sound absorbing material in the system by stating that the portions of the speaker covered with sound absorbing material be positioned as far as possible from the driver, which is itself directly connected to the horn. (See col. 4, lines 19-24.) Therefore, a prima facie case of obviousness has not been made. The references of record do not, alone or in combination, teach or suggest the combination of elements of Applicants' claims 1 and/or 11. It is therefore respectfully submitted that Applicant's claims 1 and 11 are allowable over the above-cited art. It is respectfully requested that the above rejection be withdrawn.

Claims 2-10 depend from claim 1 and claims 12-22 depend from claim 11, thus respectively including all of the limitations of claims 1 and 11, respectively. It is therefore respectfully submitted that claims 2-10 and 12-22 are allowable over the references of record for at least the same reasons as set forth above regarding claims 1 and 11, respectively.

Claim 23 is directed toward a method of constructing an acoustic horn assembly and includes the step of "securing sound absorbing material about the circumference or perimeter of said acoustic horn to enable the sound pressure level (SPL) generated by said horn to be more accurately directed". As noted above, the Kasijima et al reference is directed at reducing speaker enclosure resonance and not at the accurate direction of SPL from a horn. Moreover, the Kasijima et al reference does not disclose sound absorbing

material secured to an acoustic horn at all. Thus, the Kasijima reference does not satisfy any of the requirements of MPEP § 706.02(j) and thus a prima facie case of obviousness has not been made. It is therefore respectfully submitted that Applicant's claim 23 is allowable over the above-cited art. It is respectfully requested that the above rejection be withdrawn.

Claims 24-29 depend from claim 23 and thus respectively include all of the limitations of claim 23. It is therefore respectfully submitted that claims 24-29 are allowable over the references of record for at least the same reasons as set forth above regarding claim 23.

Claim 30 is directed to an array of acoustic horn assemblies and requires the element of “providing an improved sound coverage field, the sound pressure level (SPL) generated by each acoustic horn being directed to a localized and separate coverage area to minimize interference between two adjacent sound pressure levels and improve the overall sound coverage generated by the array”. The Kasijima et al reference does not teach or suggest an array of horns. Further, the Kasijima et al reference does not teach or suggest the minimization of interference between two adjacent sound pressure levels. Moreover, the Kasijima et al reference does not teach or suggest improving the overall sound coverage generated by the array. Thus, the Kasijima reference does not satisfy any of the requirements of MPEP § 706.02(j) and thus a prima facie case of obviousness has not been made. It is therefore respectfully submitted that Applicant's claim 30 is allowable over the above-cited art. It is respectfully requested that the above rejection be withdrawn.

Claims 31-33 depend from claim 30 and thus respectively include all of the limitations of claim 30. It is therefore respectfully submitted that claims 31-33 are allowable over the references of record for at least the same reasons as set forth above regarding claim 30.

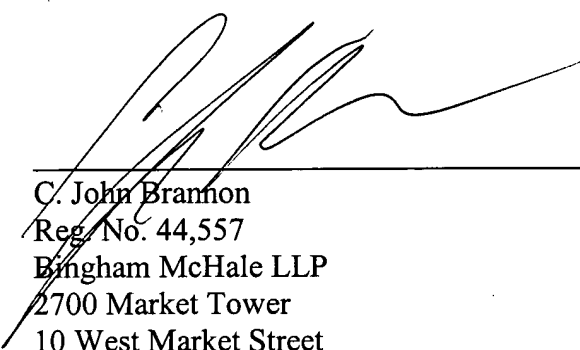
Claim 34 is directed toward a method of providing improved loudspeaker sound coverage over large areas and includes the step of “providing two or more acoustic horn assemblies for generating a sound pressure level (SPL) at a given frequency, each said acoustic horn assembly including a horn having a mouth end, a driver end and sound absorbing material disposed in close proximity to said acoustic horn, the sound absorbing material assisting the acoustic horn in placing the optimal sound pressure level (SPL) in a desired location”. As noted above, the Kasijima et al reference is directed at reducing speaker enclosure resonance and not at the accurate direction of SPL from a horn. Further, the Kasijima et al reference does not disclose, teach or suggest more than one horn operated in conjunction. Moreover, the Kasijima et al reference does not disclose sound absorbing material connected to an acoustic horn at all. Thus, the Kasijima reference does not satisfy any of the requirements of MPEP § 706.02(j) and thus a prima facie case of obviousness has not been made. It is therefore respectfully submitted that Applicant's claim 34 is allowable over the above-cited art. It is respectfully requested that the above rejection be withdrawn.

CONCLUSION

Applicant respectfully requests a Notice of Allowance for pending claims 1-34.

The undersigned welcomes a telephonic interview with the Examiner, if the Examiner believes that such an interview would facilitate review of this Amendment Response.

Respectfully submitted,



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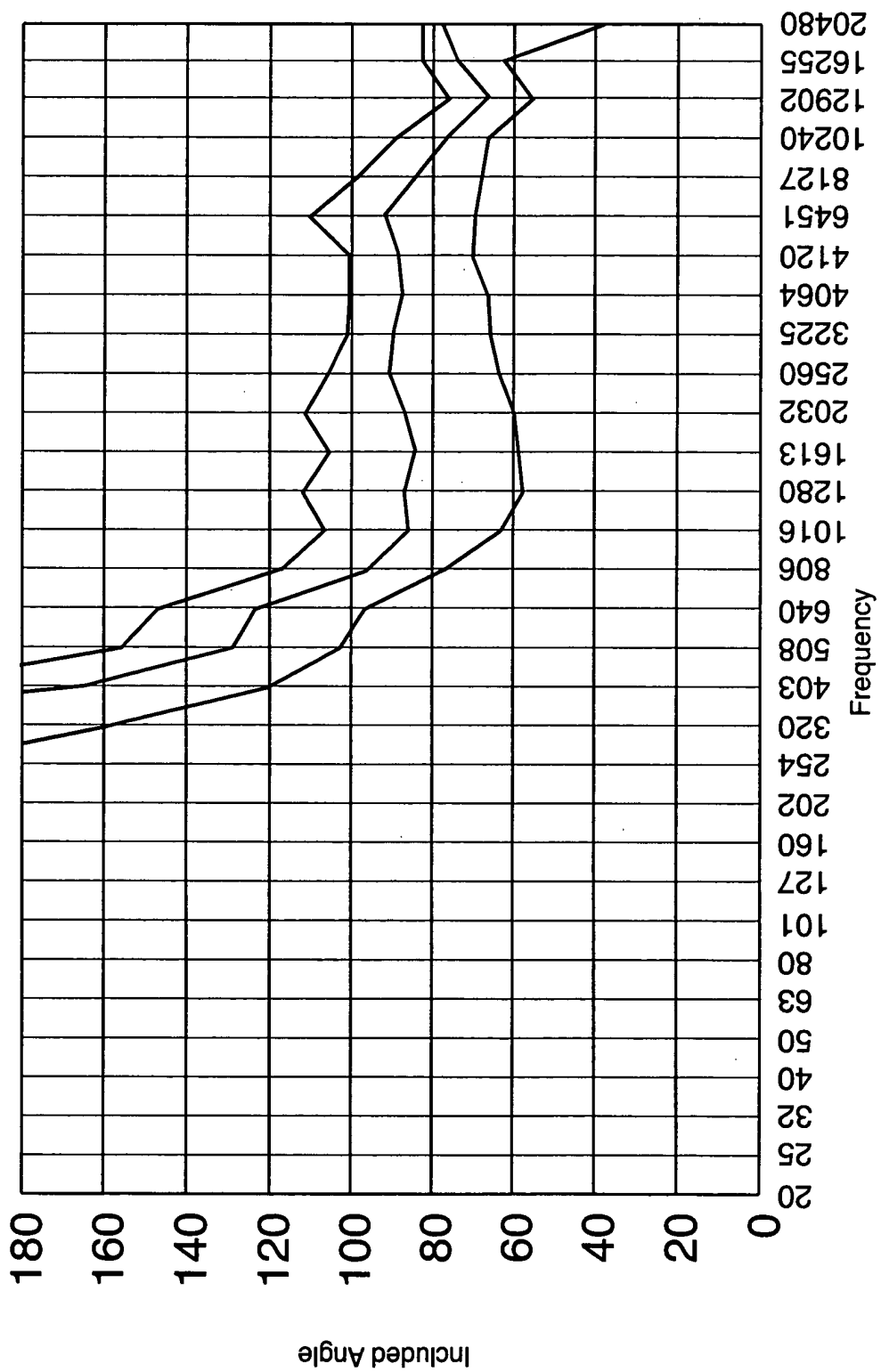


FIG. 1

PRIOR ART



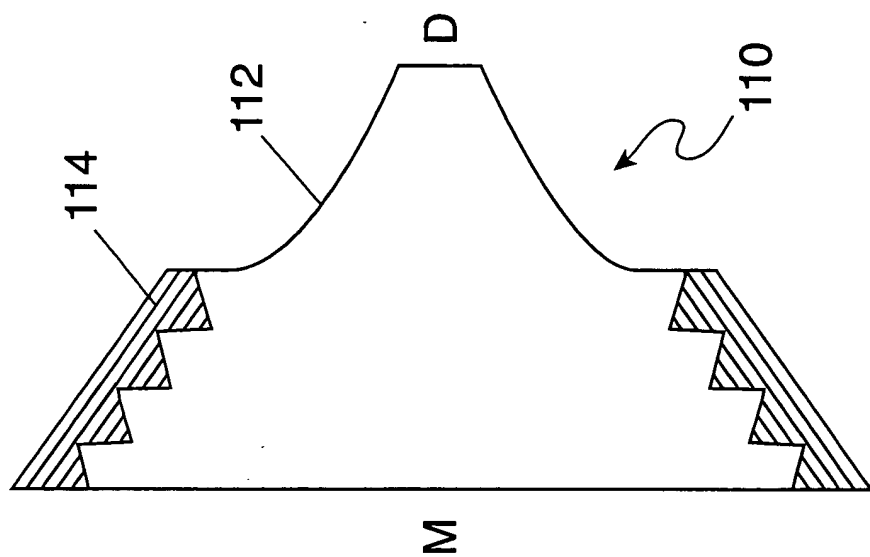


FIG. 3

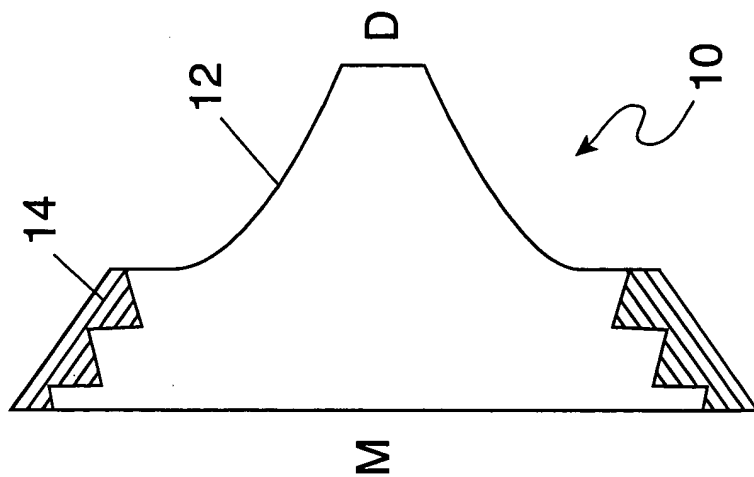


FIG. 2

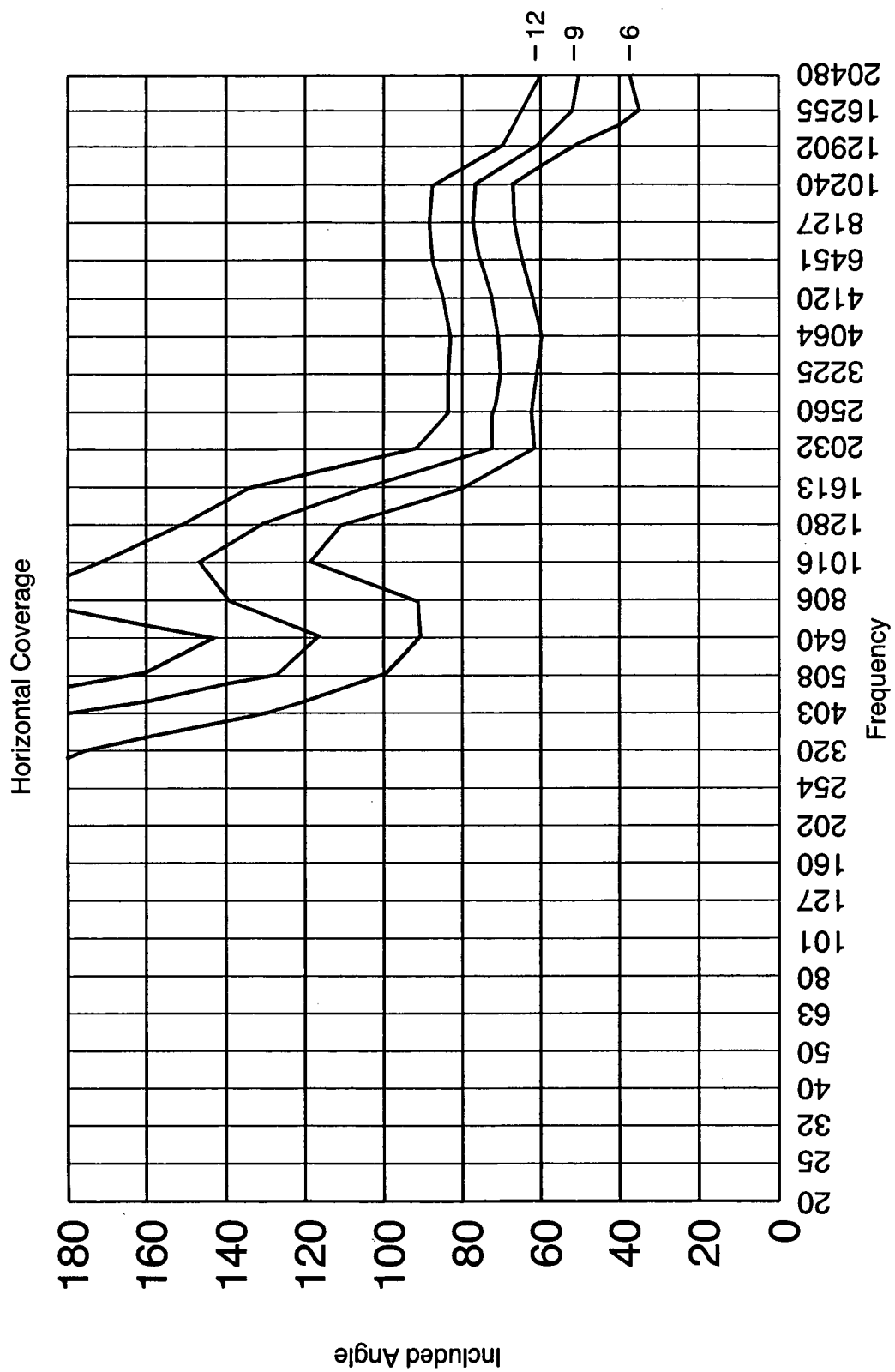


FIG. 4

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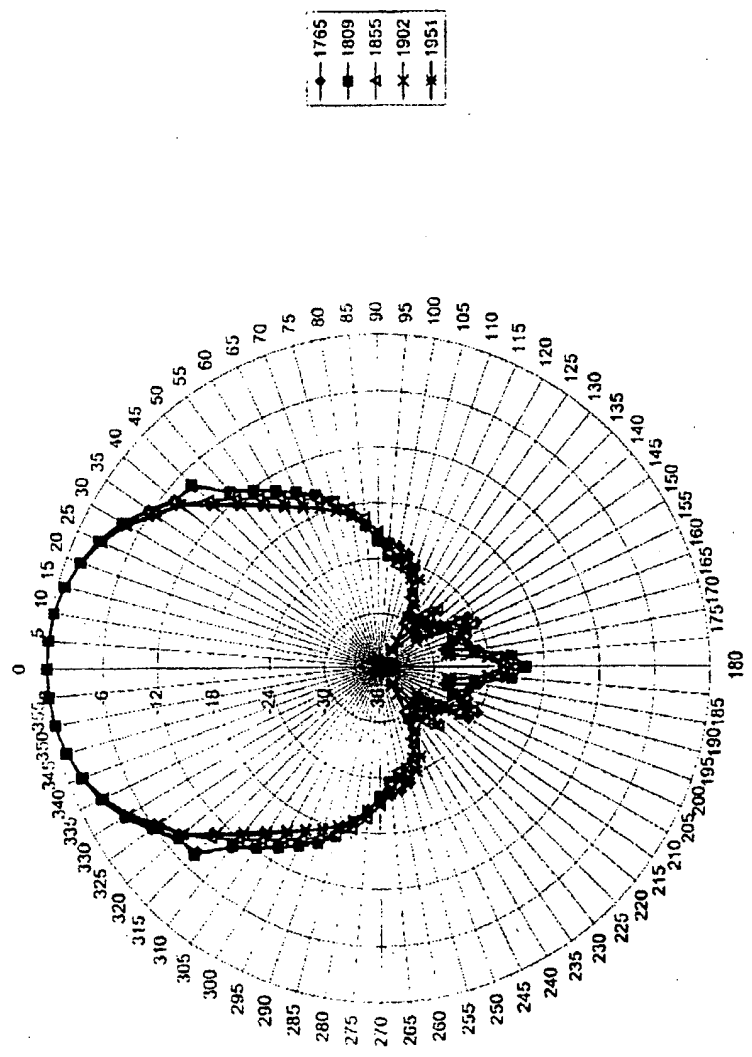


FIG. 5

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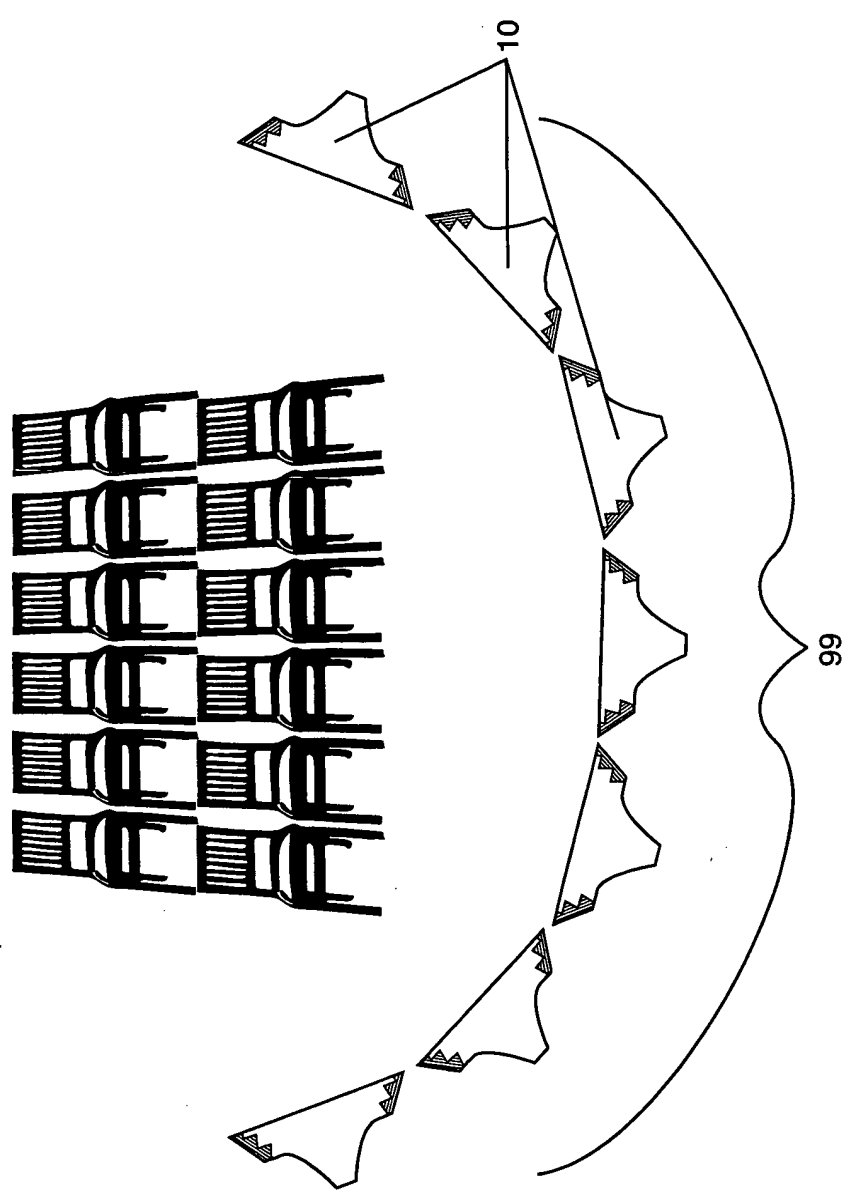


FIG. 9

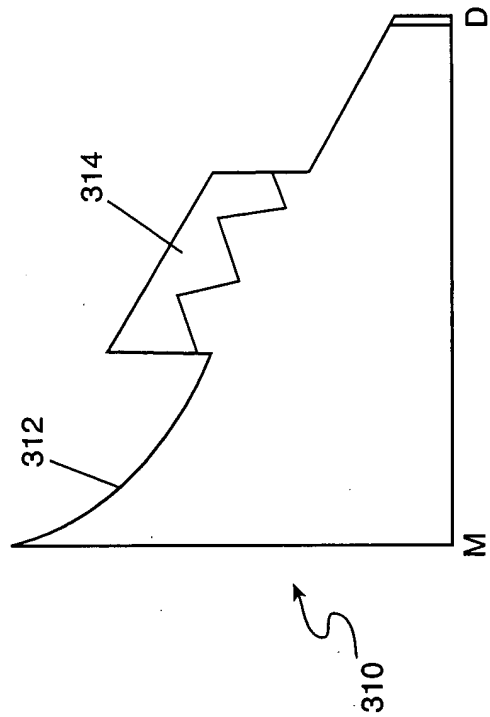


FIG. 6

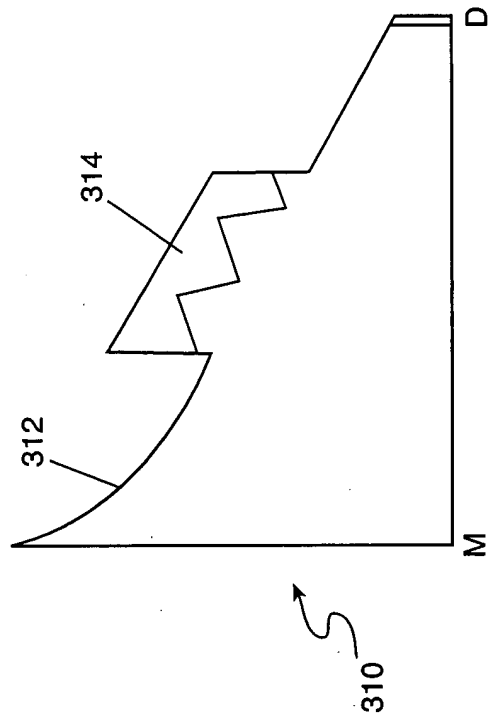


FIG. 7

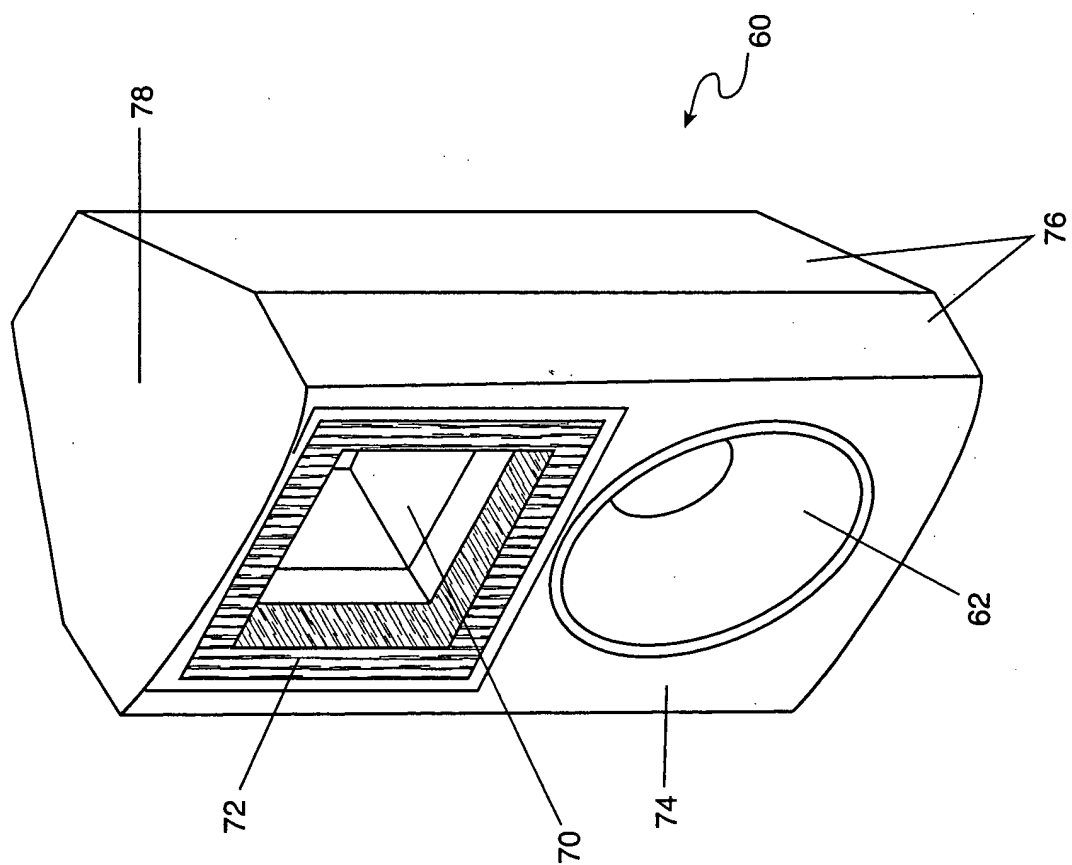


FIG. 8